



PATENT

Our Docket: P-HP 3589

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of ) Group Art Unit: 1627  
Lang and Pei )  
Serial No: 09/401,004 ) Examiner: M. Baker  
Filed: September 21, 1999 )  
For: BENZIMIDAZOLE )  
DERIVATIVES AND )  
COMBINATORIAL LIBRAIRES )  
THEREOF )

Asst. Commissioner for Patents  
Washington, D.C. 20231

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TECH CENTER 1600/2900

DECLARATION UNDER 37 U.S.C. SECTION 1.131

Sir:

We, Yazhong Pei and Hengyuan Lang, declare as follows:

1) We are the inventors named in the above-identified subject invention.

2) We understand that claims 17 to 22, 25, 35, 38 to 40 and 42 to 45 are rejected under 35 U.S.C. section 102(e) as allegedly anticipated by Girten et al., U.S. Pat. No. 6,284,735 (hereinafter "the '735 patent"), which was filed as Application Serial No. 09/356,386 (hereinafter, the '386 application) on July 16, 1999.

3) As shown on the first page of the '735 patent, the '386 application is a continuation-in-part of Application Serial No. 09/306,686 (hereinafter, the '686

application), which was filed on May 6, 1999. In turn, the '686 application is a continuation of Application Serial No. 09/301,391 (hereinafter, the '391 application), which was filed on April 28, 1999, and issued as U.S. Pat. No. 6,127,381 (hereinafter, the '381 patent).

4) The '686 and '391 applications, as well as the '381, make no disclosure of any benzimidazole derivatives. Accordingly, the earliest date of disclosure of any benzimidazole derivatives in the '735 patent is the filing date of the '386 application, which is July 16, 1999.

5) As shown above, the above-identified application was filed on September 21, 1999, which is well within one year of the filing date of the '386 application.

6) Moreover, the subject invention was conceived and reduced to practice several months prior to the filing date of the '386 application.

7) In support of this contention, attached hereto is a copy of a memorandum from us. The memorandum, dated December 21, 1998, states that "TRG 4500," which is the designation of the subject combinatorial library, and whose reaction scheme and resulting compounds are the basis of the subject invention, was completed.

8) Also attached to this memorandum, and enclosed herewith, is a list of the building blocks used to make the subject combinatorial library.

9) The combinatorial library referred to in the attached memorandum is precisely the same as the one described in the examples of the subject application. Specifically, all of the building blocks listed in the attached memorandum and used to make the subject combinatorial library are precisely the same ones at the same positions as those described in the examples of the subject application.

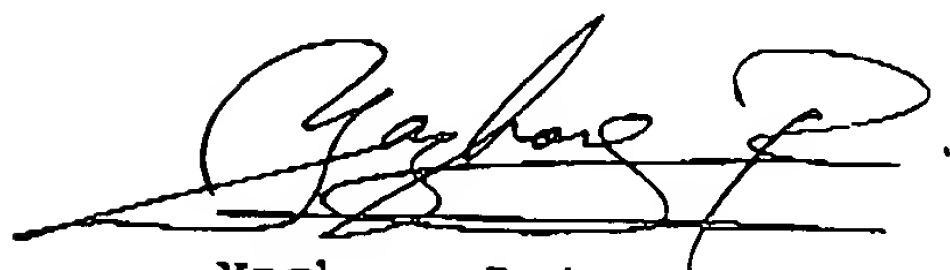
10) More specifically: a) the 40 aldehydes listed in the memorandum precisely correspond to the 40 aldehydes listed at page 76, line 9 to page 77, line 16 of the subject application; b) the 18 amino acids or diamines listed in the memorandum precisely correspond to the 18 amino acids or diamines listed at page 77, line 27 to page 78, line 14 of the subject application; and c) the 28 amines listed in the memorandum precisely correspond to the 28 amines listed at page 79, line 16 to page 80, line 14 of the subject application.

11) In addition, the subject invention was made in the United States.

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I declare that all statements made herein of my knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willfully false statements are punishable by fine or imprisonment under 18 U.S.C. Section 1001 and that any such statement may jeopardize the validity of the subject application or any patent issued thereon.

  
Yazhong Pei

Nov. 5, 2003  
Date

Declaration of Pei and Lang

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I declare that all statements made herein of my knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willfully false statements are punishable by fine or imprisonment under 18 U.S.C. Section 1001 and that any such statement may jeopardize the validity of the subject application or any patent issued thereon.

  
Hengyuan Lang

10/31/03  
Date



## TREGA LIBRARY RELEASE MEMO

TREGA  
LABORATORY

To: J. Jaeger  
cc: J. Kiely  
From: Hengyuan Lang, Yazhong Pei  
Date: 12/21/98  
Subject: TRG 4500 Final Release Package

Attached is the information for the Final Release of TRG 4500, a Library of 1,2,5-Trisubstituted Benzimidazole Derivatives.

This Package includes:

- Library Summary (1 page).
- Assembly of Building Blocks Diagram (1 page).
- Library Synthesis Scheme (1 page).
- Plate list and Weight (1 page).
- List of Building Blocks for each set (3 page).
- Database of compounds for 3 sets (Electronic)

TRG 4500 consists of 20,160 single compounds in 252 (84 x 3) microtiter plates.

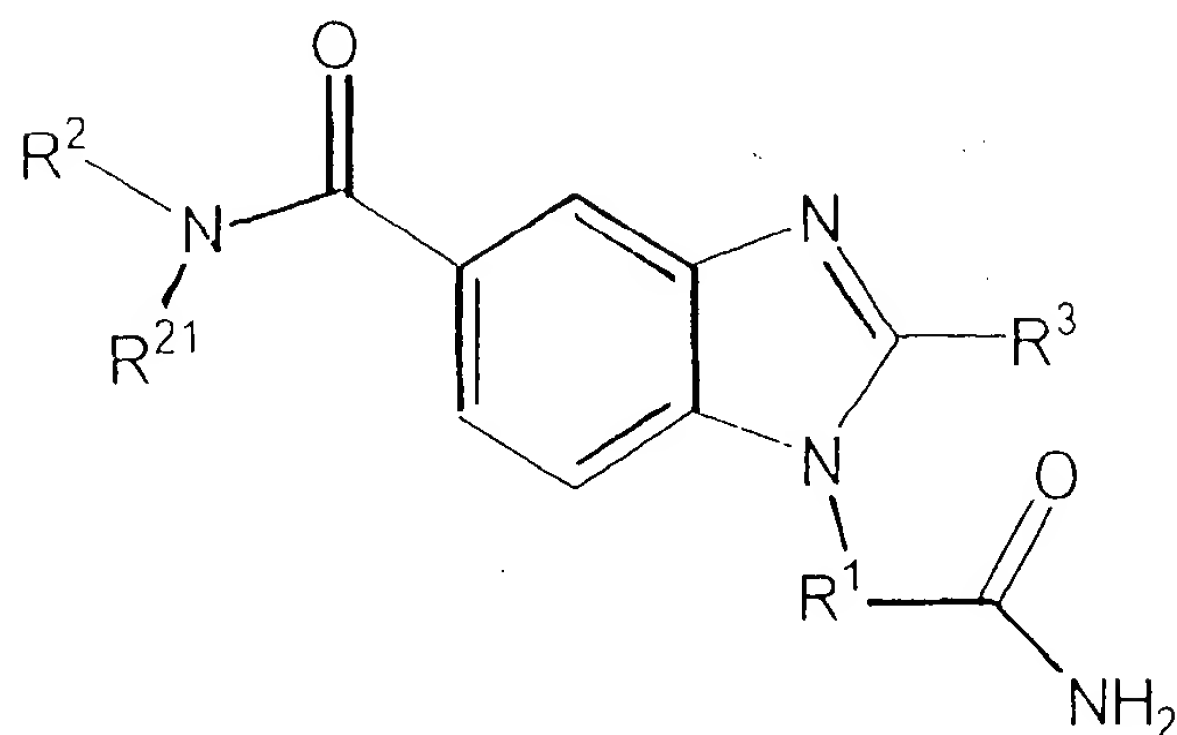
The library was prepared from 18 R1 (including 16 amino acids and 2 diamines), 28 R2 (primary and secondary amines) and 40 R3 (aldehydes, Set 2 and 3 have two substitutes) which were selected by diversity calculations. The 504 intermediates (18 R1 x 28 R2) were divided into 3 non-overlapping sets by NBA draft method. Each intermediate was reacted with 40 aldehydes and each plate contains two intermediates. The products were then analyzed by APCI-MS (direct injection) and by HPLC.

Patent Application.

Patent Filed:

TRG 4500

1,2,5-Trisubstituted Benzimidazoles



$R^1$  = alkyl, aryl or alkylamino

$R^2$  = alkyl or aryl

$R^{21}$  = H or alkyl

$R^3$  = alkyl or aryl

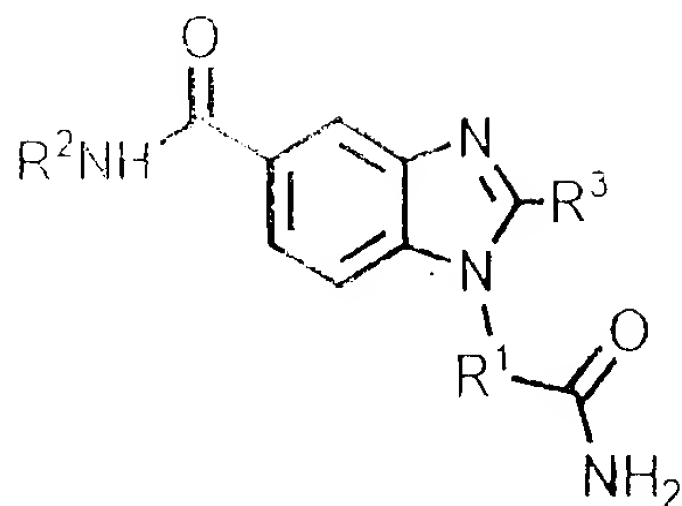
Library Format: 18  $R_1$  X 28  $R_2$  X 40  $R_3$

Library Format: Single Compounds

	Min. MW	Max. MW	Median MW	Mean MW	Std Dev.
Library Data	314.39	792.86	527.62	534.46	73.15

Stock concentration: 10 mg/mL in DMSO

Resin: MBHA (1.3 mmol/g)

TRG 4500R1 Amino Acids & Diamines

BOC-Glycine  
 BOC-Alanine  
 BOC-beta-Alanine  
 BOC-gamma-Aminobutyric Acid  
 BOC-epsilon-Aminocaproic Acid  
 BOC-Isoleucine  
 BOC-Glutamine  
 BOC-Methionine  
 Boc-Valine  
 BOC-Phenylglycine  
 BOC-Phenylalanine  
 BOC-Cyclohexylalanine  
 BOC-4-Chloro-Phenylalanine  
 BOC-Tryptophan  
 BOC-Lysine (N'-trifluoroacetamide)  
 BOC-Arginine (N'-tosyl)  
 Ethylenediamine with CDI  
 trans-1,4-Diaminocyclohexane with CDI

R2 Amines

1,3,3-trimethyl-6-azabicyclo(3.2.1)octane  
 1-(4-fluorophenyl)piperazine  
 1-acetylpiperazine  
 p-anisidine  
 4-phenoxyaniline  
 2-(aminomethyl)-1-ethylpyrrolidine  
 2-(aminomethyl)pyridine  
 morpholine  
 2-methyl-1-(3-methylphenyl)piperazine  
 2-[2-(methylamino)ethyl]pyridine  
 3,3,5-trimethylcyclohexylamine  
 cyclohexylamine  
 3-(trifluoromethyl)benzylamine  
 6-aminoindazole  
 beta-alanine ethyl ester hydrochloride  
 cyclooctylamine  
 cyclopropylamine  
 dibenzylamine  
 ethyl isonipecotate  
 N,N-diethyl-N'-methylethylenediamine  
 N-(3-aminopropyl)-2-pyrrolidinone  
 N-(3-aminopropyl)morpholine  
 4-toluidine

N-ethyl-4-picolyamine  
 N-methylcyclohexylamine  
 N-methylhomopiperazine  
 butylamine  
 2-aminothiazole

R3 Aldehydes

3-phenoxybenzaldehyde  
 3-hydroxy-4-methoxybenzaldehyde  
 4-acetamidobenzaldehyde  
 4-phenoxybenzaldehyde  
 4-bromothiophene-2-carboxaldehyde  
 4-pyridinecarboxaldehyde  
 2-methylbutyraldehyde  
 4-chloro-3-nitrobenzaldehyde  
 3-nitrobenzaldehyde  
 2,3-dichlorobenzaldehyde  
 2,5-difluorobenzaldehyde  
 5-methyl-2-furaldehyde  
 4-chloro-3-fluorobenzaldehyde  
 4-formyl-2-phenylimidazole  
 5-nitro-2-furaldehyde  
 4-bromobenzaldehyde  
 5-norbornene-2-carboxaldehyde  
 6-nitropiperonal  
 2-chloro-5-nitrobenzaldehyde  
 5-hydroxy-2-nitrobenzaldehyde  
 3-hydroxybenzaldehyde  
 3,4-difluorobenzaldehyde  
 4-dimethylaminobenzaldehyde  
 2-thiophenecarboxyaldehyde  
 4-cyanobenzaldehyde  
 4-nitrobenzaldehyde  
 2-fluorobenzaldehyde  
 4-carboxybenzaldehyde  
 2-bromobenzaldehyde  
 2-chloro-3,4-dimethoxybenzaldehyde  
 3-thiophenecarboxaldehyde  
 4-quinolinecarboxaldehyde  
 4-methyl-5-imidazolecarboxaldehyde  
 4-hydroxybenzaldehyde  
 2-ethyl-5-formyl-4-methylimidazole  
 4-chloro-2-nitrobenzaldehyde  
 3-pyridinecarboxaldehyde  
 6-nitroveratraldehyde  
 5-chloro-2-nitrobenzaldehyde  
 2-nitrobenzaldehyde